High-Density Full-Flavor Cherry Juice Concentrates

Research by the Department of Agriculture has developed method for producing more intense cherry flavor

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THE Eastern Regional Research Laboratory has extended its work on full-flavor concentrates to include cherry juice. Some work has been done both with Montmorency and Morello varieties. Our work on apple and grape juice high-density concentrates has previously been published (1,2).

In the work on apple and grape juices the methods of stripping the essence and concentrating the juice were designed to keep the flavor of the juice unaltered. However, in the case of cherry juices it was found that a more intense cherry flavor could be developed by the judicious use of heat. Full-flavor cherry juice concentrates prepared by stripping the essence, depectinizing the juice, vacuum concentrating it and restoring the essence, yielded on dilution with water, juices substantially identical with the starting juice. However, if either Morello or Montmorency juice is first subjected to a heat treatment at 230 deg. F. for about one and one-half minutes the cherry flavor will be increased. If the essence is then stripped and the juice depectinized and vacuum concentrated and the essence restored this concentrate will have a much stronger cherry flavor than the one made from unheated juice. The character of this flavor is somewhat different from that of the fresh juice, which is rather deficient in aroma and flavor. It resembles more closely the flavor associated with sour cherry products such as, for example, cherry pie. It is thus more typical of cherry flavor as the public knows it than is the sour cherry juice itself, which is seldom consumed in the fresh state. A convenient way of controlling juice heating for flavor intensification would be to interpose a holding coil and throttling valve between the preheater and the vaporizer of the essence recovery unit. This would correspond to locating them between items 3 and 4 in Figure 2 of AIC-342, "High-Density, Full-Flavor Grape Juice Concentrate." (See literature references.) The diameter and length of the holding coil to attain one and one-half minutes dwell would be determined merely by the rate of juice flow. This flavor development is not restricted to a high temperature, short time relationship. A similar effect is obtained by heating the juice to 190 deg. F. and holding for 15 minutes. Holding at 190 deg. F. for 30 minutes imparted a caramel flavor to the juice. From there on the principles of essence recovery and concentrate preparation would be the same as in AIC-342, but some of the details would vary. Forty per cent vaporization is required for aroma release from Montmorency and Morello cherry juices. The vacuum used in the evaporator could be 26-in. to 27-in. Hg. instead of 28-in. and the depectinization should be done using a commercial pectinace such as Pectinol M.[1] A diagrammatic representation of the steps used in making the product is shown in the figure at the bottom of the page.

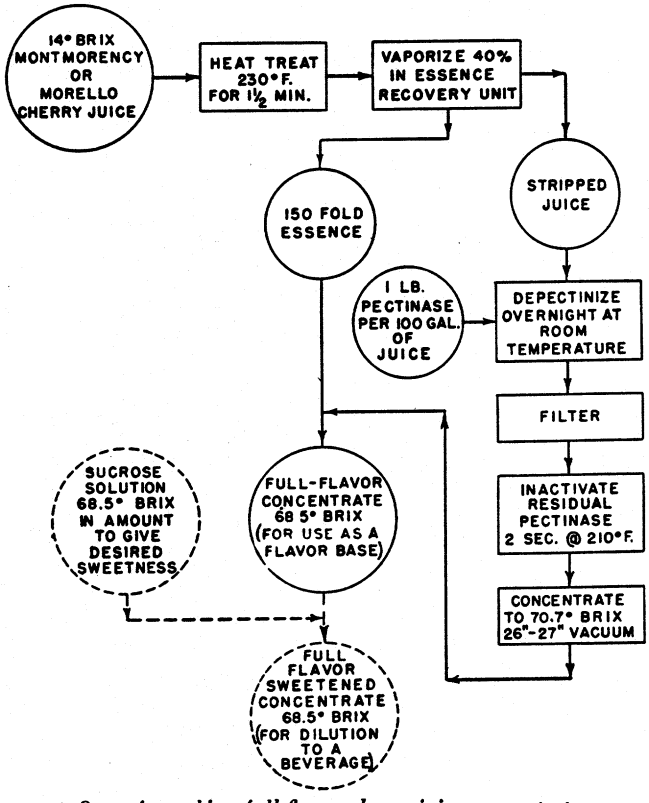
This work was done with the object of preparing cherry concentrates with strong characteristic cherry flavor which should be of interest to the users of fruit extracts. However, it was found that if sugar was added to the concentrate to the extent of 60 per cent of the cherry solids a palatable cherry juice, excellent as a beverage, could be reconstituted from either Montmorency or Morello concentrate and pleasing blends could be made. The quantity of sugar required to give the desired sweetness may be expected to vary with commercial juices prepared in different years by different manufacturers. When the concentration is 68.5 deg. Brix the addition of 6 parts of water to 1 part of concentrate will give a beverage juice of about 12,5 deg. Brix.

Pending knowledge of the storage properties of cherry concentrates, they should not be kept above 35 deg. F.

LITERATURE CITED

(1) Roderick K. Eskew, C. S. Redfield, and G. W. Macpherson Phillips, High-Density Full-Flavor Apple Juice Concentrate, U. S. Dept. Agr., Bur. Agr. and Indus. Chem. AIC-315 (Eastern Regional Research Laboratory). August 1951. (Processed.)

(2) Roderick K. Eskew, Clifford S. Redfield, Nelson H. Eisenhardt, Joseph B. Claffey, and Nicholas C. Aceto, High-Density Full-Flavor Grape Juice Concentrate, U. S. Dept. Agr., Bur. Agr. and Indus. Chem. AIC-342 (Eastern Regional Research Laboratory). September 1952. (Processed.)



● *Steps in making full-flavor cherry juice concentrates.*

[1] Recommendation of this specific product is not implied. Products of other manufacturers may be equally effective.

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